Ann Reg Sci 39:663–689 (2005)
DOI 10.1007/s00168-005-0017-7

ORIGINAL PAPER

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Inter-regional corporate ownership and regional autonomy: the case of Switzerland

Published online: 26 November 2005

Abstract By using a unique database on the ownership relations of Swiss firms, this article proposes a study of specific regional characteristics in that it reveals the way in which ownership is structured. The paper clearly highlights the different ways that regions behave regarding their involvement in these ownership structures, on a national and international level. The types of behaviour can be associated with the various economic specialisations of Switzerland's regions. Firstly, it appears that the most frequent ownership links occur among firms within the same Regional Production System. It is then noted that the links between the Swiss regions are far less numerous than international links. The international links, by their number and their distribution throughout Switzerland, constitute the main source of discrimination between the regions. The financial region of Zurich masters this ownership issue most competently. It is the most autonomous region in that it is able to maintain control over its economy, to become highly involved in other spaces, and attract the most investments. It would appear that the regions that are the best integrated within the network are those that have been best able to take advantage of the evolution of the Swiss financial system. The low density of the links between the various Swiss regions suggests that these regions organise their relations on scales that are different to that of the nation. This clearly raises questions regarding the policies based on the principle that the growth of the main centres affects the rest of the country positively.

We wish to thank: (1) The Swiss Federal Office for Education and Science (OES) for having supported this research in the frame of the COST A17 programme. (2) The firm Orell Füssli for making its databases Who Owns Whom (ownership/interests acquired in Swiss companies) and that of the Register of Trade available to us. Without this raw data, this study would have been impossible. We are most grateful for the assistance provided. (3) Working Group 1 from the COST A 17 initiative and in particular Professor Henk Folmer for having kindly agreed to read this article and to make the necessary comments.

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JEL Classification G34 · L22 · O16 · R12

1 Introduction

Regional endogenous development requires a certain degree of regional "autonomy" in order to be effective. By autonomy, we mean the capacity of a firm to operate relations within its own region or with other, more remote regions (Grosjean and Crevoisier, 2003). Autonomy is therefore the contrary of autarchy (which means no relations with others): it is a capacity to act with, and on, the environment (Varela, 1989). In regional endogenous development approaches,[1] regional autonomy is necessary because it allows local interaction to take place in order to build local resources and to innovate.

During the last 20 years, the development of the financial system and its growing impact on the real economy is raising new questions about regional autonomy and about the limits of endogenous development theories. One of the major areas of evolution within this system corresponds to the process of disintermediation, which consists of the financial institutions becoming removed from their role as the intermediary between savings and credit in order to devote themselves to offering financial services. The link between saver and the investor, which was once carried out by an intermediary, is becoming a direct link between the shareholder and the company. Disintermediation has forced SMEs and family-owned firms to find new equity capital. At the same time, financial markets are providing better access to capital for large companies that use the stock exchanges for this purpose. The consequence of these developments is an increased integration and concentration of corporate ownership as a result of mergers and acquisitions. In France for example, Chabanas (2002) shows that the number of controlled firms was four times higher in 1999 than in 1980.

In such a context, one could in fact wonder whether regional autonomy still exists, and thus whether and to what extent endogenous development theories can still be upheld. The "Global City" approach (Sassen, 1991) shows how financial activities have developed in a highly concentrated manner, and consequently the way in which financial centres have concentrated their control over a globalised economy. Since these "global cities" control a significant part of the economy, this naturally means that other regions have at least partially lost their autonomy.

In this article, we address the question of regional autonomy by means of an analysis of regional, inter-regional and international corporate ownership in Switzerland. In order for an endogenous development policy to be efficient, it is necessary for the region to have a sufficient degree of autonomy. But are the Swiss regions autonomous? Are they regions that have closed themselves in? Do they have major relationships between each other? Are they all integrated within the international network? The responses to these questions will make it possible to discover which spaces are considered pertinent for the various regions. Autonomy thus becomes a question of primary importance for the regional political authorities.

[1] Regional Production Systems, industrial districts, innovative milieus, etc. For a review of literature on these approaches, see in particular Benko and Lipietz (1992); Rallet and Torre (1995).

Switzerland has experienced a considerable transformation of its economy over the last 20 years. The international and national financial centres have grown considerably and, in parallel, industry and tourism have encountered difficulties. From a geographical point of view, the regional production systems (RPSs) that constituted the financial centres (Zurich, Geneva, and to a lesser extent Lugano and Basel) have developed, while RPSs that focused on more traditional exports (industry and tourism) have undergone a decline (Corpataux et al. 2003; Crevoisier et al., 2001).

In this paper, autonomy is not viewed in the sense of autarchy but rather as the capacity to handle external relationships. The first part of it will therefore address the notion of autonomy in relation to ownership structures. Starting with Sassen's "Global City" concept and summarising the topic of ownership in literature concerning RPSs, it proposes a typology of regional autonomy based on the various types of inter-regional ownership (controlling regions, controlled regions, etc.) that can be observed.

The second section describes data on ownership, followed by a brief description of the regions analysed (RPSs of Switzerland), and then by an explanation of the method used. The third section summarises the main results obtained. The performances of the RPSs are evaluated with the assistances of indices on a national and international level before presenting the overall results and the basic constraints of the study. The final section recalls the main results and draws the parallel between the behaviour of the various regions and their structural specificities.

2 Corporate ownership and regions: theoretical approaches

Naturally, corporate control through ownership does not necessarily prevent some autonomy in everyday management. Abundant literature is available on the behaviour of subsidiaries of large groups that involve local players. The behaviour of a large group in a given regional context is always influenced by its willingness and capacities to participate or not in regional innovation dynamics (Perrat 1992; Saxenian 1996). On the one hand, it can have its subsidiary act like any other SME or local player. In such a case, it will participate in innovation networks, decide on its technological and product development locally, etc. On the other hand, the internal coherence of the group may prevail and impose decisions taken independently of the local dynamics and specificities. A major force of some large groups is precisely their capacity to shift from one type of behaviour to the other, depending on the degree of maturity of products and technologies developed by regional innovative milieus (Crevoisier 1995; Bellandi 2001). Nevertheless and in any case, the fact remains that in the event of financial problems or if a local plant needs funds for its development, the shareholders maintain a say in the matter.

Although the more general theme of autonomy appears relatively frequently in literature on regional development, the question of corporate ownership and regions as such appears rarely. Indeed, the independence of firms can be interpreted as local entrepreneurial dynamism because it proves that local entrepreneurs are sufficiently competitive to finance the growth of their firms themselves. It can, however, also be interpreted as backwardness, if one considers that integration in financial markets is the basic requirement of modern economy. Being owned by a group may be seen as dependence (in literature on RPSs), exploitation (in the

Table 1 Interpretation of corporate ownership in regional development theories

	Regional control	Inter-regional control		International control		Independent firms
Ownership	Ownership under own regional control	To control ownership in other regions	Ownership controlled from other regions	To control ownership in other countries	Ownership controlled from other nations	Independent firms
Regional production system theories	Place where decisions are taken and the place where regional interaction and learning occur coincide: favours coherent local dynamics	Successful RPSs take over competitors and acquire upstream and downstream activities	Investments occur because firms external to the region seek access to specific resources	Successful RPSs take over competitors and acquire upstream and downstream activities	Investments occur because foreign firms seek access to specific resources	Place where decisions are taken and the place where regional interaction and learning occur coincide: favours coherent local dynamics
Spatial division of labour theory		Central dominant regions exploit spatial differences in skills and wages through corporate ownership	Dependence of local subsidiaries maintains the region at the lowest level of the spatial division of labour chain	Central dominant nations exploit spatial differences in skills and wages through corporate ownership	Dependence of local subsidiaries maintains the region at the lowest level of the international division of labour chain	
The Global City theory	Place where decisions are taken and the place where regional interaction and learning occur coincide: favours coherent local dynamics	National financial centres are paying ever less consideration to their *Hinterland*		The growth of a financial centre is closely linked to international financial investments from and to other financial centres		Place where decisions are taken and the place where regional interaction and learning occur coincide: favours coherent local dynamics
The Neoclassical theory	Ownership is considered in the same way as any other investment. Investors allocate their capital to the most profitable firms, independently of spatial distance.					

Source: Table drawn up by authors

theory of spatial division of labour) or attractiveness and dynamism (in the "Neo-classic" or "Global City" approaches). For this reason, it is vital to grasp the various key theoretical approaches in order to make sense out of the notion of ownership control. In this study, the Neo-classical approach, literature on regional production systems (RPSs), the Global City concept and the spatial division of labour (SDL) theory are taken into consideration. Table 1 summarises how each of the theories considers ownership relations.

In a world of models, structured according to *Neo-classical hypotheses* (here, we are notably referring to the conditions necessary for perfect competition as the perfect mobility of production factors and, more particularly, to the perfect mobility of capital), the ownership relation can be simply considered as an investment. The investor allocates his capital to a firm that unites the characteristics of returns and risks in a way that he deems appropriate. Here, the attractiveness of the firm that receives the investment is the decisive factor. The investment is made in it because it is considered to be the best investment opportunity available on the market. The notion of transferring property is not essential here: it is more the returns hoped for and the risks associated with the firm that are decisive.[2] On a national level, the allocative process is often considered to have the virtue of harmonising the per capita revenues of the various regions (the *convergence* theory), since the capital is oriented according to its regional marginal productivity that itself is dependent on the value of the capital/labour ratio.

On the international scale, literature on foreign direct investment (FDI) usually considers acquisitions and greenfield investments in the same manner: both types of investment have a positive effect on the target country. Dunning (1986) argues that the net outward direct investment position of a nation or a region is directly linked to its level of development: there is a U-shaped relationship between economic development and a country's net outward investment position. As economic development progresses, inward investments grow. They then decline, while domestic firms and local and national factor endowment improve as a result of learning processes. At that stage, domestic firms are strong enough and outward direct investment should develop. The country's cost advantage should have diminished in parallel. An empirical confirmation of the investment development path has been recently provided by Barry et al (2003) for the case of Ireland. Not all authors, however, share this optimistic vision.

Chapman and Edmond (2000) demonstrate that the mergers and acquisitions process within the European chemical industry has led to a systematic transfer of ownership of firms from the south of the continent to northern countries. The restructuring processes that followed then produced fairly clear, negative effects (loss of jobs) on the regions of the firms acquired. Moreover, and when moving to a regional analysis of the phenomenon, it would appear that the FDI by no means benefits the regions of the target countries in a uniform way. For example, Pavlinek (2004) shows that in four Eastern European countries, the flow of FDI in the 1990s

[2] Some heterodox approaches strongly criticise this concept of the choices by investors. A preference for liquid assets (Dow, 1999) or mimetic mechanisms (Orléan, 1999) constitutes factors that question the pertinence of the classical explanatory factors of capital allocation. This article does not take the alternative approaches into consideration, since it is not a study of the allocation process but rather its implications on the systems (regional autonomy).

was highly concentrated, in spatial terms, in the major cities and conurbations, thus favouring unequal development among the regions.

Literature on *Regional Production Systems (RPSs)* (industrial districts, technopoles, innovative milieus, etc.) focuses on endogenous development processes. Local forms of interaction and learning are viewed as the result of strategies that are drawn up locally. Usually, it is considered that this takes place in line with considerable decision-taking power on the part of local actors. Obviously, financial independence is part of this autonomy. If the place where decisions are taken and the place where regional interaction and learning occur coincide, this understandably favours coherent local dynamics. Nevertheless, this freedom does not necessarily mean that independent or regionally controlled firms automatically take part in these dynamics. Inversely, external ownership control does not always prevent dynamic participation in local learning. The way in which large firms' subsidiaries operate within regional production systems has given birth to hundreds of surveys and interpretations. On the one hand, it is clear that the subsidiary of a group does not take part exclusively in a regional or a branch dynamic: it must also deal with corporate management, which has its own development strategy (Dupuy and Gilly, 1995). This considerably hampers the capacity of subsidiaries to nurture endogenous development. Nevertheless and on the other hand, several authors (see for instance Crevoisier, 1995; Perrat, 1992; Bathelt, 2000) stress that subsidiaries can also be part of local innovative dynamics. This behaviour appears at certain, limited periods of time, when a group is seeking new techniques, products or resources. When innovative projects have matured, accumulation dynamics that are dependent on major investment capacities change the dominant economic logic. External control becomes decisive at this point in order to organise the various components of the value chain at a much wider spatial scale: international sales networks, manufacturing facilities in low cost countries, the capacity to raise large amounts of capital on the international financial market, etc. These phenomena are not taken into consideration by literature on RPSs.

Another interesting way to consider regional autonomy consists of taking into consideration the location of the owners of large firms that have their headquarters in the region (Wòjcik, 2002). In this case, regional autonomy is not referred to as a means of maintaining competitiveness through a better match between collective innovation processes and decision-taking power, but to as a form of *corporate governance*, characterised by the dominance of regional players in the control of large regional firms.

The way in which multi-regional or multi-national firms organise their controlled subsidiaries over space is explained by the *Spatial Division of Labour (SDL) theory* (Massey, 1995). In this theory, labour is seen as a resource used and controlled by capital. Ownership structures play a decisive role because this is the most obvious way in which the different kinds of labour are integrated within a more general production system. Regions are not autonomous: each one has a position in a more widespread organisation and this organisation is orchestrated by large, multi-regional or multi-national companies exerting direct (for example through ownership) or indirect (for example through market power) control. The spatial division of labour is both functional (functions are shared among regions according to specialised skills) and hierarchical (headquarters employing skilled workers are located in regions that are at the top of the spatial division of labour

chain) (Hoeschele, 2002), while routine operations that require non-skilled workers are located in regions that are at the lowest level of this chain.

By structuring spatial hierarchical structures and autonomous development in the form of centres, Sassen's "Global City" (Sassen, 1991) aims to explain why and how the increased dispersion of economic activity took place hand in hand with a growing need for global integration and control. This brought about new functions for the major cities of the world: they became command centres for global economic activity and the production systems that produce precisely the expertise and the means that make this global control possible. Consequently, the increased dispersion of economic activity took place in parallel with increased spatial concentration regarding ownership. Sassen argues that the reorganisation of the financial industry has been characterised by sharp growth and innovation on the part of financial firms, and by their proliferation. These conditions have shifted the point of gravity in the industry away from the large trans-national banks that once dominated the industry towards major *centres* of finance, cities specialised in the finance industry. Sassen shows how the transition to a finance-driven economy generates new economic spaces.

These widely differing theoretical approaches no doubt each explain one part of reality. They at least reveal that ownership can be interpreted in different – if not contradictory – ways. This is no doubt simply due to the fact that ownership is an ambivalent relationship that takes on two aspects without opposition or ambiguity being necessarily present. First of all, it is the proof of the attractiveness of the target firm, since this has led to investments on the part of the entity acquiring it. However, it is also a relationship of power that implies a transfer of the decision-taking autonomy of the target company to the entity acquiring it.

Thus, the definition of the autonomous region *par excellence* is that one that benefits from grouping together the strategic and best-remunerated activities by placing itself at the summit of the hierarchy (Sassen and SDL), that attracts investments to it by offering good prospects for returns at low risk (classical vision) and finally, that succeeds in preserving control over the economic fabric that creates its competitive advantage (RPS).

3 Data and methods

3.1 Data

The data required in order to carry out the spatial analyses regarding relations between firms was obtained from the *Who owns Whom* database published by the firm Orell Füssli, which specialises in collecting data on companies. The figures are those for January 2003. The main criterion used for a company to feature in the database is a minimum share capital of CHF 500,000.-.[3] Based on this, the links with the other firms are noted, and whatever their size. The database thus includes companies whose equity capital exceeds this threshold and their possessions, whose size may be more modest. Essentially, each recording in the database consists of a target firm, a shareholder firm and the percentage of capital held by this latter.

[3] Approximately EUR 320,000.- .

In order to describe these firms more precisely and notably to obtain their location, it is necessary to use another database, i.e. the *Swiss Directory of the Register of Trade (Annuaire suisse du registre du commerce)* also by Orell Füssli. Unfortunately, no reliable indication regarding the size of these companies is provided. The number of employees or the equity capital of the company is mentioned in some cases but not sufficiently regularly for the information to be used. The various links between the firms cannot, therefore, be weighted according to the size of the target firm. Like the work by Chapman and Edmond (2000) on mergers/acquisitions in the EU chemical industry, the analysis will thus simply address the "events", i.e. the number of links between the companies. Moreover, we should stress the fact that this database is a rare case in that the names of the companies are provided, whereas the custom for such information generally consists of aggregating the data in order to preserve their anonymity. Thanks to this factor, it is thus possible to carry out research into these companies when the quality of the information (notably regarding their size) is not satisfactory.

The results presented below are based on a table of ownership relations that are strictly over 50%, i.e. controlling relations. Theoretically, each relation thus implies a transfer of strategic decision-taking from the firm formerly owned to the owner firm. After some operations on the chains of ownership,[4] this now lists only relations between the final owners and the owned firms, i.e. relations between firms in the possession of others and the entities that have formal control over them. Regarding ownership by foreign entities, the threshold of 50% (strictly for cases where this is exceeded) was also used. It should be noted that unlike in the case of the Swiss relations, we do not possess data on equity capital that is owned by foreign firms, unless this is a (foreign) investment in a Swiss firm. The number of foreign companies controlled by the Swiss firms is thus underestimated, since it is possible that the foreign companies in question in turn control other entities abroad. On the other hand, the final Swiss owner is retained for our purposes, as is the case for internal relations in the country.[5]

After selection (relations >50% only) and processing (in order to retain only relations between the final owner and what it owns), some 17,456 relations remain. Among these, 7,138 are relations of control between Swiss RPSs and 9,019 between RPSs and foreign countries (in both directions). Finally, the 1,299 remaining relations link foreign firms to one another indirectly, via Swiss ones. These indirect links between foreign firms are not analysed in this article. The 16,157 relations (17,456–1,299) involving the Swiss firms are analysed in turn in the sections below.

3.2 Regional production systems in Switzerland

Usually, studies on the case of Switzerland are based on the politico-administrative breakdown by Canton (NUTS 3). Cantons differ largely in population (for

[4] If A owns (>50%) B and B owns (>50%) C, the final relations are between A and B and between A and C. The relation between B and C disappears since, logically, B no longer has decision-taking autonomy.

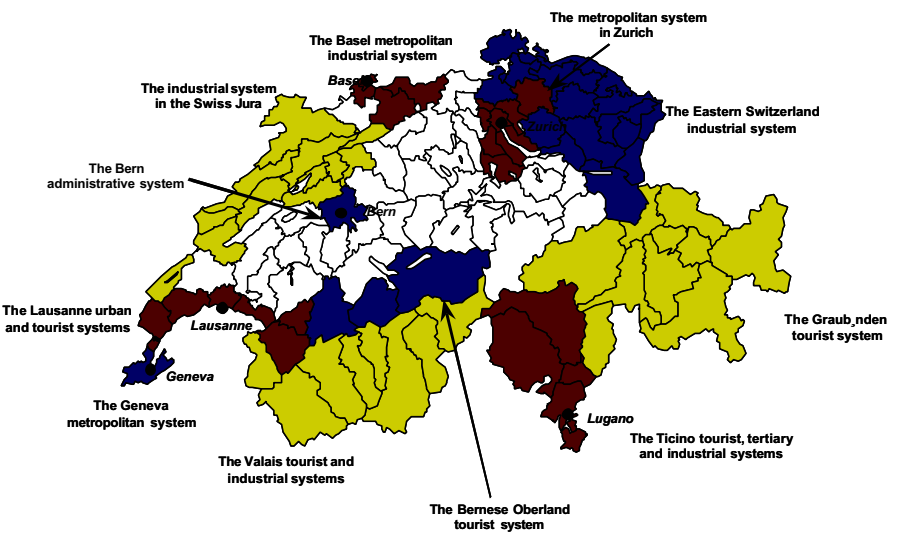
[5] If $A_{Switzerland}$ owns $B_{Switzerland}$ and $B_{Switzerland}$ owns $C_{Foreign}$, the relation between $B_{Switzerland}$ and $C_{Foreign}$ is deleted in order to retain only the relations between the final owner ($A_{Switzerland}$) and what it owns ($B_{Switzerland}$ and $C_{Foreign}$).

example, the Canton of Zurich has a population that is 35 times larger than that of Uri) and are not coherent economic entities. That is why the breakdown into regions used for this study is that of the RPSs proposed by Crevoisier et al. (2001). The authors identified eleven systems in Switzerland (Map 1) that are homogeneous from the point of view of economic specialisation: each of them is highly specialised in one or several types of complementary activities. Essentially, this identification is based on the analysis of employment localisation quotients. Moreover, the quantitative analysis was validated by regional monographs and interviews with regional experts in order to pinpoint the most qualitative data on existing relations between the various activities.

The eleven RPSs of Switzerland do not cover the country's entire territory, since certain regions do not comply with the criteria retained (strong specialisation in certain types of jobs, for example) and cannot be considered genuine RPSs. As Table 2 shows, the RPSs nevertheless account for 73.1% of the population[6] and 77.8% of jobs.[7] The specialised regions identified are of highly varying sizes from a surface area, population or employment point of view.

3.3 Calculation of the indices

After the presentation of the data and of the regions retained in order to carry out the spatial analysis of amounts of share capital held, the method used to evaluate the autonomy of the Swiss regions is presented in this sub-section. This method was created in order to take the various interpretations suggested by the theoretical approaches in section 1 into consideration. From a classical point of view, ac-



Map 1 The eleven regional production systems in Switzerland. Source: Corpataux, Crevoisier and Thierstein (2002)

[6] Civil population, federal population census, 2000.
[7] Federal establishment census, 2001.

Table 2 Description of the Swiss RPSs

	Specialisation(s)	Population		Employment	
Jura	Watchmaking, jewellery	628,270	8.6%	242,538	7.7%
Basel	Chemical industry	494,799	6.8%	248,621	7.9%
Bern	Public administration	292,420	4.0%	175,570	5.6%
Geneva	Financial activities, international organisations	410,145	5.6%	208,248	6.6%
Graubünden	Tourist industry	190,183	2.6%	80,058	2.5%
Lausanne	Public administration, tourist industry	481,376	6.6%	200,317	6.4%
Eastern CH	Machine and textile industry	1,085,286	14.9%	400,485	12.7%
Oberland	Tourist industry	79,550	1.1%	30,284	1.0%
Ticino	Tourist industry, financial activities	310,671	4.3%	143,103	4.6%
Valais	Tourist industry	279,077	3.8%	101,481	3.2%
Zurich	Financial activities	1,076,674	14.8%	615,032	19.6%
Total RPS		5,328,451	73.1%	2,445,736	77.8%
Switzerland		7,287,357	100.0%	3,141,778	100.0%

Sources: Crevoisier, Corpataux and Thierstein (2001), federal population censuses in 2000 and establishments census in 2001

quiring interests in companies is proof of the region's attractiveness regarding investments: the more the region becomes a target for investments; the more it can be judged as attractive. Then, following the reasoning suggested by the theory of the spatial division of labour, we reverse the perspective by using the hypothesis that the target region is dominated by the source region of the investment. This domination thus implies a redistribution of the functions whereby the strategic and best remunerated functions are transferred to the owner region. Finally, from the point of view of the endogenous development theories, it is the region's degree of autonomy that is the decisive criteria. It is thus necessary for the region to succeed in preserving control over its activity if it is to avoid depending on strategies it cannot control and thus to remain competitive on the long term. These three dimensions of the regions, attractiveness, control and own control, are measured by means of the indices presented below.

3.3.1 Inter-regional control index

P_j is the number of entities controlled by region j outside its territory.[8] The performance index in terms of control of the region j (C_j) is defined as follows:

$$C_j = P_j / \left(\frac{1}{11} \times \sum_{i=1}^{11} P_i \right) \quad (1)$$

Literally, C_j corresponds to the number of inter-regional possessions of region j, divided by the average number of inter-regional possessions of the 11 RPSs. The

[8] In a first stage (section 4.1), the way in which the Swiss regions are integrated within the national network is evaluated. Then, in section 4.2, it is the international relations of the Swiss regions that are handled.

interpretation of the index is then very simple. When C_j equals 1, the number of firms that are controlled by the region j outside its territory is the same as the average for the Swiss regions. If C_j equals 5, region j controls five times more firms than the average for the Swiss regions. Finally and symmetrically, if C_j equals 0.2, region j controls five times fewer firm than the average for the Swiss regions.

3.3.2 Attractiveness index

S_j is the number of firms within region j that are controlled from other regions. The attractiveness index of region j (A_j) is defined by:

$$A_j = S_j / \left(\frac{1}{11} \times \sum_{i=1}^{11} S_i \right) \tag{2}$$

A_j is thus equal to the number of companies owned by other regions in region j, divided by the average number of companies owned inter-regionally in the RPSs. If A_j equals 1, region j attracts a number of investments that is equal to the average for the Swiss regions. If A_j equals 5, region j is then five times more attractive than the average for the Swiss regions. If A_j equals 0.2, region j is considered to be five times less attractive than the average.

3.3.3 Own control index

Here, T_j is the total number of owned (controlled by another company) companies in region j and U_j is the number of companies that region j possesses among these T_j companies.[9] This gives the own control index (O_j) that is equal to:

$$O_j = \frac{U_j}{T_j} \left(\frac{1}{11} \times \sum_{i=1}^{11} \frac{U_i}{T_i} \right) \tag{3}$$

O_j is the portion of the companies controlled by region j among the total of controlled firms in this region. When O_j equals 1, region j controls the branches of its region to an extent that is average for the Swiss regions. If O_j equals 5, the degree of own control is five times higher than the average. Finally, when O_j equals 0.2, region j controls a portion of the branches of its region that is five times smaller than the average.

3.3.4 Weighted indexes

It is clear that the size of the regional entities considered influences their involvement in the network of interests acquired in companies. Thus, if we attempt to measure performances with all other parameters remaining constant in a desire to calculate the regions' propensity for controlling or being controlled, it is necessary

[9] Thus $T_j - U_j = S_j$.

to weight the indices by the size of the regions. From another angle, these differences also reflect the reality in which production systems of different sizes coexist. For this reason, we present the non-weighted results and the results weighted by the size of the regional entities considered in parallel.

The results regarding control and attractiveness are weighted by the portion that each RPS represents in terms of employment. On the other hand, no adjustment has been applied to the own control indices. In fact, even if this can depend on the size of the regions, weighting would have had little sense. Own control is a notion that is pertinent to the scale of a system, whatever its size. Nevertheless, control and attractiveness can doubtlessly be considered as dependent on the size of the RPSs. A large RPS will rapidly take on major significance in another region (with high level of control), just as a large RPS will rapidly constitute a major target for investment for another (with high level of attractiveness). The weighting was made by means of the number of jobs located in the regions.

E_i is the number of jobs in region i. The weighted control formula for region j (WC_j) is thus:

$$WC_j = \left(\frac{P_j}{E_j}\right) / \left(\frac{1}{11} \times \sum_{i=1}^{11} \frac{P_i}{E_i}\right) \tag{4}$$

Finally, the weighted attractiveness of region j (WA_j) is defined by:

$$WA_j = \left(\frac{S_j}{E_j}\right) / \left(\frac{1}{11} \times \sum_{i=1}^{11} \frac{S_i}{E_i}\right) \tag{5}$$

The interpretation of the weighted indices follows the same logic as that for the non-weighted ones. For example, if WC_j (WA_j) equals 1, it can be said that, for a given number of jobs, region j controls (attracts) the same number of firms (investments) as the average for the Swiss regions.

4 Results

4.1 National relations: proximity matters!

In this section, our focus is on existing relations of control on the space of the Swiss RPSs alone. Each observation thus links a final owner (owned by no other national or international firm) with a subsidiary, each of them located in one of the RPSs defined above.[10] The observations are summarised in Table 3.

Of the 7,138 existing relations between the RPSs, 73.2% are internal relations (the owner and the entity owned belong to the same RPS). These are shown on the diagonal of Table 3. Shares in firms are particularly affected by proximity and by belonging to the purchaser's target RPS. Thus 91.7% of owned companies in the Oberland are owned internally. The most "extravert" region shows a rate of 61.3% (Graubünden).

[10] The guiding principle in these analyses is always the concept of final control. For example, if A_{RPS} owns $B_{outside\ RPS}$ and $B_{outside\ RPS}$ owns C_{RPS}, the relations A_{RPS}-$B_{outside\ RPS}$ and $B_{outside\ RPS}$-C_{RPS} are ignored, preserving only the relation between A_{RPS}-C_{RPS}.

Table 3 Inter-RPS controlling relations

	RPS	Regions in which owners are located											
		Jura	Basel	Bern	Geneva	Graubünden	Lausanne	Eastern CH	Oberland	Ticino	Valais	Zurich	Total
Regions in which subsidiaries are located	Jura	404	11	37	22	5	22	11	1	1	0	62	576
	Basel	5	646	30	12	8	10	9	0	0	0	124	844
	Bern	6	28	371	5	3	7	9	0	2	0	68	499
	Geneva	9	28	12	328	0	44	10	0	2	5	76	514
	Graubünden	1	7	6	4	127	1	18	0	6	1	37	208
	Lausanne	20	20	23	23	0	285	11	0	1	4	58	445
	Eastern CH	8	27	26	10	19	7	907	1	7	0	205	1,217
	Oberland	0	3	12	1	3	1	1	42	0	0	6	69
	Ticino	6	13	6	12	4	6	15	0	133	0	47	242
	Valais	4	11	6	19	2	27	1	2	0	72	12	156
	Zurich	25	110	71	46	35	46	112	0	11	2	1,910	2,368
	Total	488	904	600	482	206	456	1,104	46	163	84	2,605	7,138

Source: Who owns Whom database 2003, Orell Füssli

When reasoning on the basis of controlled companies in the spaces (reading Table 3 horizontally), we note that certain regions control only a fairly modest portion of the total of affiliated companies (right-hand column of Table 3) in their region. The Valais (72/156 = 46.2%), Ticino (55.0%) and the Oberland (60.9%) have low rates of own control compared with Zurich (80.7%), or Basel (76.5%). The involvement of one system in other can also reach interesting proportions. Zurich is, for example, the owner of other RPSs to degrees varying from 7.7% (12 out of 156 in the Valais) to 19.4% (Ticino). It is virtually always the best represented "foreign" owner. We thus reveal that the inter-RPS relations are the source of notable imbalances, although this type of relation represents only 26.8% of the sample.

Similarly and again according to Table 3, we could ask ourselves which regions attract the most investments from the various RPSs. Apart from their own region, nearly all regions show a clear preference for that of Zurich. However, as mentioned above, Zurich is the system with the largest own ownership. Zurich is thus an attractive region (favourite destination of a large number of RPSs), controlling (highly present in the other RPSs) and independent (high rate of own ownership).

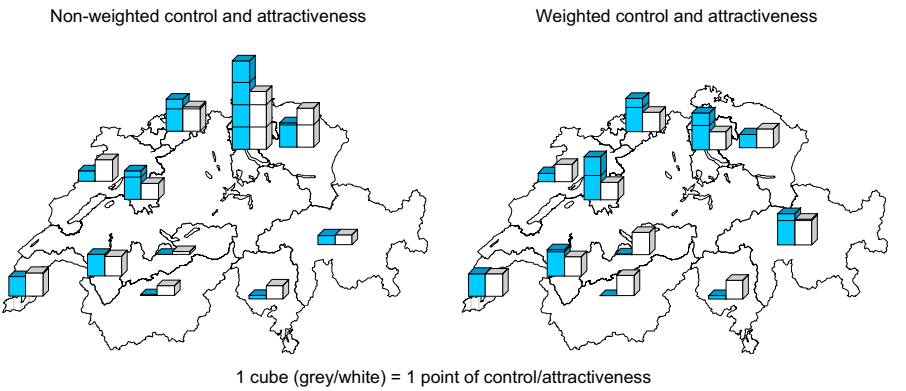
Table 4 presents the indices aimed at measuring the way in which the regions become integrated within the national investment network. The degree of own control, attractiveness and inter-regional control for each of the Swiss regions are noted therein. The figures for own control (3) are not highly dispersed. This can be explained fairly easily by the clear preference on the part of the RPSs for holding shares in companies within their own systems. On the other hand, inter-regional control (1) and attractiveness (2) (non-weighted) reveal highly dispersed figures and particularly because of Zurich, which clearly dominates the other Swiss regions in these areas. Zurich controls four times more companies, is 2.6 times more attractive, and presents an own ownership figure of 1.2 times higher than the average. Map 2 gives a better visual summarising of the control and attractiveness indexes.

The *weighting* considerably reduces the gaps between the systems. In terms of control (4), Zurich is no longer ahead and it is Bern that dominates the other regions

Table 4 National RPSs performance indexes

RPS	Own control	Control		Attractiveness	
	Non-weighted	Non-weighted	Weighted	Non-weighted	Weighted
Jura	1.1	0.5	0.5	1.0	0.9
Basel	1.2	1.5	1.6	1.1	1.0
Bern	1.1	1.3	2.0	0.7	0.9
Geneva	1.0	0.9	1.1	1.1	1.1
Graubünden	0.9	0.5	1.5	0.5	1.2
Lausanne	1.0	1.0	1.3	0.9	1.0
Eastern CH	1.1	1.1	0.7	1.8	1.0
Oberland	0.9	0.0	0.2	0.2	1.1
Ticino	0.8	0.2	0.3	0.6	0.9
Valais	0.7	0.1	0.2	0.5	1.0
Zurich	1.2	4.0	1.7	2.6	0.9

Source: Table drawn up by authors



Map 2 National RPSs performance indexes. Source: maps drawn up by authors

of Switzerland. This modification of the hierarchy can be easily explained by the fact that Zurich's RPS represents 25% of the total jobs in the Swiss RPSs, while that of Bern accounts for only 7%. Zurich nevertheless remains in the upper part of the hierarchy of regions. The sparsely populated region of Graubünden climbs in this analysis, whereas eastern Switzerland shows a large loss.

In terms of attractiveness (5), the regions of Graubünden, the Oberland and Geneva show the best results. Zurich falls slightly below the national average. It should be stressed at this point that the weighting here particularly reduces the gaps regarding performance: there is only a difference of 0.2 point separating the highest from the lowest. Switzerland's regions thus have no major differences in their propensity for attracting investments.

Table 5 International control relations

RPS	Swiss owners of foreign firms		Foreign owners of Swiss firms	
Jura	335	6.3%	242	6.5%
Basel	935	17.6%	298	8.0%
Bern	203	3.8%	133	3.6%
Geneva	400	7.5%	522	14.1%
Graubünden	29	0.5%	55	1.5%
Lausanne	214	9.7%	235	6.3%
Eastern CH	683	12.9%	400	10.8%
Oberland	3	0.1%	16	0.4%
Ticino	62	1.2%	194	5.2%
Valais	8	0.2%	39	1.1%
Zurich	2,138	40.3%	1,575	42.5%
Total	5,310	100.0%	3,709	100.0%

Source: Table drawn up by authors

4.2 International relations

In this section, we focus on the relations between the RPSs and foreign firms. Initially, it should be noted that the number of companies owned by Swiss firms is largely understated since we have no information about the number of firms that are controlled abroad by firms that are under direct Swiss control.[11] On the other hand, it was possible to identify not only the Swiss firms that are directly controlled from abroad but also firms controlled indirectly.[12]

Table 5 shows that 5,310 foreign firms are owned by Swiss firms and 3,709 Swiss firms are owned by foreign ones. It can thus be noted that although our data does not permit us to identify indirect control relationships beyond Switzerland's borders, the RPSs taken together nevertheless show a clearly positive balance regarding foreign firms (+1,601).[13]

The database states the nationality of the companies owned by Swiss firms, but not the foreign owners of Swiss firms. Table 6 shows the nations for whose firms the Swiss RPSs own majority shares. Germany, with 13.5% of the relations, is the country that attracts the most investment from Swiss companies. Switzerland's neighbouring countries (Germany, France, Austria and Liechtenstein) represent 1,566 cases of Swiss ownership (with the 41 from Liechtenstein), i.e. 29.5% of the sample.

Although geographical proximity may appear decisive when considering the importance of Germany, is it considerably less clear when examining the other countries that emerge. The USA (8.7%), Great Britain (8.4%), China (3.5%) or Japan (1.9%) prove that firms' interest in controlling companies clearly goes beyond the constraints linked to geographical distances. The fourth column of the table shows the RPS that is the most involved in each of these countries: Zurich is always ahead, as the results of Table 5 already rendered predictable.

As in the previous section, we propose an assessment of the various RPSs in terms of control (1), attractiveness (2) and own control[14] (3) but this time on an international level. From Map 3 and Table 7, we see that Zurich is largely ahead in terms of the non-weighted control index but also regarding that for attractiveness. Still in non-weighted terms, Basel and Eastern Switzerland have a high rate of control and Geneva and Eastern Switzerland are high on the attractiveness scale.

As far as national comparison is concerned, the weighting reduces the dispersion regarding performances, although major differences remain and particularly in terms of ownership. Basel thus becomes the region with the highest level of control, closely followed by Zurich. Lausanne, Geneva and Eastern

[11] We do not have the data on the possible possession of foreign firms under Swiss control. If $A_{Switzerland}$ owns $B_{Foreign}$ and $B_{Foreign}$ owns $C_{Foreign}$, it is not possible to identify the final relationship between $A_{Switzerland}$ and $C_{Foreign}$.

[12] Again respecting the principle of the final owner, if $A_{Foreign}$ owns $B_{Switzerland}$ and $B_{Switzerland}$ owns $C_{Switzerland}$, it is the relations $A_{Foreign}$-$B_{Switzerland}$ and $A_{Foreign}$-$C_{Switzerland}$ that are taken into consideration.

[13] However, the number of companies controlled indirectly could also be considerable. In the case of Switzerland, for example, some 2,482 firms are directly controlled from abroad, with 1,227 being controlled indirectly. Moreover, it should be recalled that via these 3,709 companies, 1,299 foreign companies are indirectly controlled by foreign firms.

[14] For own control, the results presented here are global, i.e. national and international. Thus, the number of internal links was considered as compared with the total (internal, inter-regional and international) of owned companies in the territory.

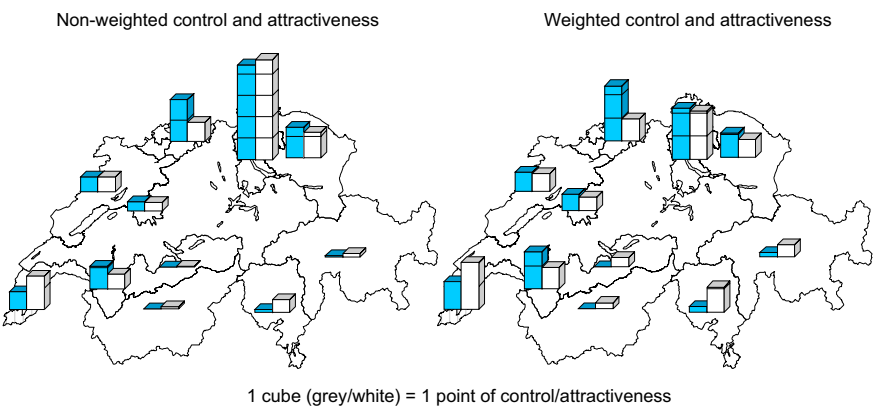
Table 6 Favourite target nations for Swiss interests

Rank	Target nation	Subsidiaries	Most implicated RPS (No.)
1	Germany	715	Zurich (280)
2	United States	463	Zurich (215)
3	Great Britain	444	Zurich (210)
4	France	391	Zurich (117)
5	Italy	240	Zurich (84)
6	China	187	Zurich (73)
7	Holland	181	Zurich (80)
8	Austria	179	Zurich (70)
9	Spain	136	Zurich (48)
10	Luxembourg	105	Zurich (62)
11	Belgium	103	Zurich (38)
12	Japan	99	Zurich (41)
13	Singapore	95	Zurich (45)
14	Australia	90	Zurich (42)
15	Brazil	85	Zurich (26)
16	Sweden	82	Zurich (39)
17	Canada	71	Zurich (27)
18	Caiman Islands	63	Zurich (48)
19	Bermuda	58	Zurich (26)
20	Czech Republic	58	Zurich (30)
...	...	...	...
Total	140 nations	5,310	Zurich (2,138)

Source: Orell Füssli databases

Switzerland are also above the average. Zurich and Geneva are clearly the most attractive regions for foreign investments. Ticino, to a lesser extent, is also considered to be an attractive destination.

The own control figures in Table 7 are fairly close to the average: the RPSs thus differ very little. Despite this, it can be noted that Geneva and Ticino have the lowest indices. This result should be seen in direct relation with the high degree of attractiveness on an international level (particularly for Geneva) of the two regions. In fact, although a major portion of the branches in these regions is in foreign hands, this naturally implied a low degree of local control. It should be recalled, nonetheless, that the own control index is calculated in a way that makes it possible to evaluate the behaviour of the regions in relation to the "average Swiss region" whose index equals 1. The indices do not, however, indicate the proportions in which the RPSs do in fact have own control. All these statistical results are discussed in more depth in the following sections.



Map 3 International RPSs performance indexes. Source: maps drawn up by authors

4.3 Significance of the results

4.3.1 Comparison of regional, national and international levels

The above sections analysed ownership structures on a national and international level. The present section is aimed at identifying an overall image of the phenomenon. It is a question of examining how the production systems, which are coherent from the point of view of their specialisation, organise their ownership relations (or, at least in cases of majority shareholding) at different spatial levels.

Table 8 proposes a synthesis of the data that was used in the preceding tables. Section 3.1, which addresses the analysis of the participations on national territory, made it possible to analyse the 5,225 internal relations within the RPSs and the 1,913 relations between these RPSs. On this scale, the figures clearly reveal that the shares held in firms by others are above all acquired by firms within their own RPS.

Table 7 International RPSs performance indexes

RPS	Own control	Control		Attractiveness	
	Non-weighted	Non-weighted	Weighted	Non-weighted	Weighted
Jura	1.1	0.7	0.9	0.7	0.8
Basel	1.2	1.9	2.4	0.9	1.0
Bern	1.3	0.4	0.8	0.4	0.6
Geneva	0.7	0.8	1.2	1.5	2.1
Graubünden	1.0	0.1	0.5	0.2	0.6
Lausanne	0.9	1.1	1.7	0.7	1.0
Eastern CH	1.2	1.4	1.1	1.2	0.8
Oberland	1.1	0.0	0.1	0.0	0.4
Ticino	0.7	0.1	0.3	0.6	1.1
Valais	0.8	0.0	0.1	0.1	0.3
Zurich	1.0	4.4	2.3	4.7	2.1

Source: Table drawn up by authors

Table 8 Distribution of interests acquired according to their space

	Number of links	Percentage
Intra-RPS	5,225	32.3
Inter-RPS	1,913	11.8
International	9,019	55.8
Total	16,157	100

Source: Table drawn up by author

This result recalls that of Wòjcik (2002), who reveals that the German capital market is not a national one but is rather made of up intra-national, regional markets, the "Länder".

Section 3.2 proposes an analysis of the international relations (5,310 outward relations (Switzerland–abroad) and 3,709 inward relations (abroad–Switzerland, i.e. 9,019 links in total) maintained by the RPSs. In Table 8, we quickly realise that the portion of these international relations is the largest one (55.8%). This partly sheds doubt on the role played by geographical proximity, which nevertheless remains clear on a national level. In fact, this suggests that is it more a case of sectoral proximity playing a central role in order to explain the acquisition of interests. It is thus possible that the density of the networks of shareholdings acquired within the RPSs is precisely due to the fact that these regions are specialised in clearly distinct sectors of activity.

The large proportion of foreign investors in the total number of cases of shares acquired in Swiss firms (3,709 out of a total of 10,847[15] Swiss subsidiaries) naturally reduces the degree of own control on the part of the RPSs. This problem is not revealed in Table 7 since the own control index only provides information on the behaviour of the RPS in relation to the average RPS, which has an own control index of 1.

Thus, while the Valais was the only region to control less than half of the subsidiaries on its territories in the national analysis (46.2%), enlarging the scale brings most of the RPSs under this threshold, with Ticino (30.5%), Geneva (31.7%), Valais (36.9%) and Lausanne (41.9%) having the lowest percentages.[16] Bern (58.7%), Basel (56.6%) and Eastern Switzerland (56.1%) become the regions that emerge as the leaders for this parameter.

Still according to Table 8, it can be noted that the indices for the national analysis are calculated according to a lower number of relations than for the international analysis. Thus, in the domestic analysis, the inter-regional control and attractiveness indices are calculated on the basis of the 1,913 existing relations among the RPSs. In fact, most relations that exist within the country (7,138) are internal to the regions (5,225). The indices for the international analysis are

[15] 3,709 branches controlled from abroad, 1,913 branches that have an owner situated in a Swiss region other than their own, and 5,225 branches that have an owner in the same region.

[16] In the national analysis, only the domestic links are taken into consideration. For example, firms in the Valais control 72 branches out of 156 (46.2%). Then, in the international section, the range of branches included in the calculation of the own ownership index is widened. In this way, and still in the case of the Valais, the 39 branches controlled from abroad are added to the 156 Swiss branches of firms. Valais thus controls 36.9% (72/(156+39)) of the branches on its territory.

however calculated on the basis of 9,019 relations, i.e. 5,310 for the control indices and 3,709 for the attractiveness indices.

By observing the weighted results (Tables 4 and 7) only, it can be noted that the dispersion of performances is extremely low for national attractiveness and for own control. The major differences appear at the international level and regarding national control. It is thus essentially in these criteria that a significant differentiation between RPSs can take place since the dispersion and the number or relations represented by the indices are the highest.

4.3.2 Linking the structure of ownerships and the specific characteristics of the RPSs

Is it possible to establish a link between the ownership structure of the various Swiss RPSs as it appears in Table 4 and 7 on the one hand and between the economic profiles of these different RPSs as they appear in several recent studies on the economy of the various regions of Switzerland on the other (Corpataux and Crevoisier 2004; Crevoisier et al., 2001; Roth and Crevoisier, 2004)?

The *financial regions* of Zurich and Geneva occupy the leading positions within the hierarchy of ownership structures. They are by far the most attractive regarding foreign investments, and exert considerable control at every level. This confirms their role as a hub for international investments, and particularly in the area of finance (Roth and Crevoisier, 2004). On a national level, Zurich also functions as a central location for numerous services: the main import and distribution companies and the major banks and insurance companies serving the national market have their headquarters in Zurich. This is not the case for Geneva, which is practically an enclave within French territory and whose economy is above all oriented around international activities.[17] The degree of own control of the two systems is relatively low and particularly for Geneva.

The *Basel region* occupies an intermediate position. Home to the headquarters of the largest pharmaceutical and chemical companies,[18] it has a twin vocation: industrial and financial. Over the last 20 years, however, the pharmaceutical companies have expanded internationally to a considerable extent. The activities that remain in Basel are increasingly focused on the management of these large, global concerns and less and less on the industrial aspects. The presence of prestigious financial institutions such as the Bank for International Settlements, or the Swiss Bankers Association further reinforces this financial profile. All this is reflected in the control exerted by Basel at a national, but above all international, level. However, and unlike Zurich or Geneva, Basel does not really attract international investors. It does not have a hub function.

The conurbation of Bern, the capital of Switzerland, is traditionally the central location for numerous activities liked to the post service, telecommunications, railways, and agricultural and agro-food activities. It is also the region with the

[17] The main bloc of activities of Geneva's economy is that of the international organisations such as the UNO or the Red Cross. The second bloc is that of the financial sector, with international asset management in particular.

[18] The giants Novartis and Roche are the concerns that inflate the indices for the region to the greatest extent.

highest degree of own control. This should be considered in comparison with its moderate attractiveness. *Lausanne*, like Bern, plays the role of a centre, but in this case for the French-speaking region of Switzerland (to the west of the country). These two regions thus have high own control indexes on a national level. Bern is extremely low on the international scale. If Lausanne has a much higher degree of international control, this is largely explained by the presence of the headquarters of Nestlé in the region–a company that is by no means representative of the general profile of the region.

The *industrial regions* of eastern Switzerland and the Jura present extremely similar profiles. They vary little from the "average RPS" except for national control: a criterion for which both regions have fairly low performances (0.7 and 0.5 respectively). These regions are generally considered to be fairly internationalised, but when compared with the regions of Zurich, Basel or Geneva, this characteristic is considerable attenuated.

Finally, the *tourist regions* of Graubünden, the Bernese Oberland and the Valais are at the lower end of the hierarchy. These regions have a low level of own control and are not attractive to international investors. The Graubünden region is an exception, with a high level of national control. To explain this, it should be noted that Graubünden's tourist system is strongly oriented towards the high quality sector, represented by companies with major financial resources. These regions nevertheless remain attractive for Swiss investors.

Finally, the *Ticino* region has a fairly heterogeneous profile. The traditional activities of tourism and of serving as the location for production subsidiaries for firms in Switzerland's German-speaking region have declined over the last twenty years. Over the same period, the financial centre of Lugano, highly oriented towards Italy and partly controlled from Zurich, was in the process of developing. The entire system is highly open to the exterior and marked by its border with Italy. All this explains the extremely low levels of own control and of control.

4.4 Placing the results in perspective

All the analysis presented in this study is based on ownership structures among companies whose *size* is unknown. This work is thus based on their relations only. In fact, the database does not supply information relating to the size of the firms. Although the name of the companies is known, collecting information such as the number of employees would require considerable effort in terms of time investment. It was nevertheless possible, however, to note that the larger groups, identified thanks to data on what they owned, correspond to the giants on the Swiss stock exchange, the Swiss Market Index. Finally, we should note that the interest of this work lies in identifying the overall manner in which the Swiss regions are integrated within this network of investment, and less a case of carrying out a quantitative analysis of this phenomenon.

Another aspect that limited this study was the spatial organisation of the individual company. In fact, this was only taken into account to a very limited extent since the analysis is based on the location of the headquarters alone. The spatial impact of a control/dependency relation can thus be distorted by the dispersion of a *multi-establishment* company over several regional systems. In fact, the registered offices of a firm (which is the decisive factor in this article) can be

located in a different region from most of its establishments. Ideally, the impact should be broken down among the various establishments, but this has naturally not been the case because the database is related to the financial relations (share capital owned) and not legal ones (links between headquarters and their establishments).

Control and dependency among the companies has been defined in the study as a relation of equity capital ownership of more than 50%. Behind this purely statistical value, in reality, hides a completely different complexity. First of all, the financial control over a company does not always necessitate such a portion of equity capital. Much lower degrees of ownership can be decisive at shareholders general meetings. A comprehension of further dimensions is necessary for an even more delicate issue – that of evaluating the *degree of decision-taking autonomy* of a subsidiary. One could, for example, cite the criterion of the place of the entity concerned within the group's global strategy, including its level of specialisation, the intensity of its exchanges with other entities in the group, and the group's positioning in the technical division of labour (Dupuy and Gilly, 1995). On a meso-economic level, the only links clearly integrated within this study are those of a financial nature. The financial nature constitutes a necessary dimension but one that is not sufficient to judge the decision-taking power of a company and even more so of a region.

5 Conclusions

Does the spatial analysis of ownership structure between companies in Switzerland make it possible to reveal an overall vision of the economic fabric of the country? If so, does this vision correspond to any of the theories taken into consideration for this study?

First of all, the results of the own control indices were surprising. On the national and international levels, the indices of the RPSs did not show a large degree of dispersion and were thus fairly close to 1: the RPSs have comparable degrees of own control. On average, on a national scale, the RPSs control 73.2% of the subsidiaries on their territory. By integrating international subsidiaries within the analysis, however, this percentage drops to 48.2%, with the balance distributed between abroad (34.2%) and other RPSs (17.6%). The marked presence of foreign companies in the Swiss regions that own over a third of the subsidiaries should thus be stressed.

The RPSs nevertheless retain control over nearly half the subsidiaries. If we add to this the considerable number of independent companies that are not taken into account in this study, it can be noted that proximity still plays a decisive role. The method of division into spaces that was used for this analysis thus appears pertinent. In fact, the Swiss RPSs not only form coherent territories as far as their productive organisation is concerned, but also form regions that reveal a density, a coherence in their financial participations in companies.

Compared to the proportion of internal relations, the portion of inter-regional relations can appear negligible (17.6% of subsidiaries are controlled from another RPS). These relations are nevertheless important because inter-regional control is considerably hierarchised, leading to the emergence of controlling regions and controlled regions. There is thus always a spatial division of labour at the national

level. At its peak are the central conurbations of the Swiss plateau (Bern, Zurich and to a lesser degree Basel and Lausanne), which play the role of a central location controlling the *national market*.

The type of relations that must doubtlessly be considered as being the most important is nevertheless that of those on an international level. It is their number (34.2% of subsidiaries in Switzerland are controlled from abroad, meaning twice as many than those controlled by another RPS) *and* their distribution that make them the most discriminating type of ownership participation. Firstly, their distribution varies considerably among the regions, which can be seen from comparing the national and international indices (Tables 4 and 7). Moreover, their number is greater. The international ownership indices are thus calculated on the basis of 9,019 relations (5,310 for control and 3,709 for attractiveness indices), while on a national level the basis is 1,913 relations (for both control and attractiveness indices).

To understand these international relations, it appears that two explanations are necessary: one based on the logic of control by the major companies, and another on the logic of the financial centres.

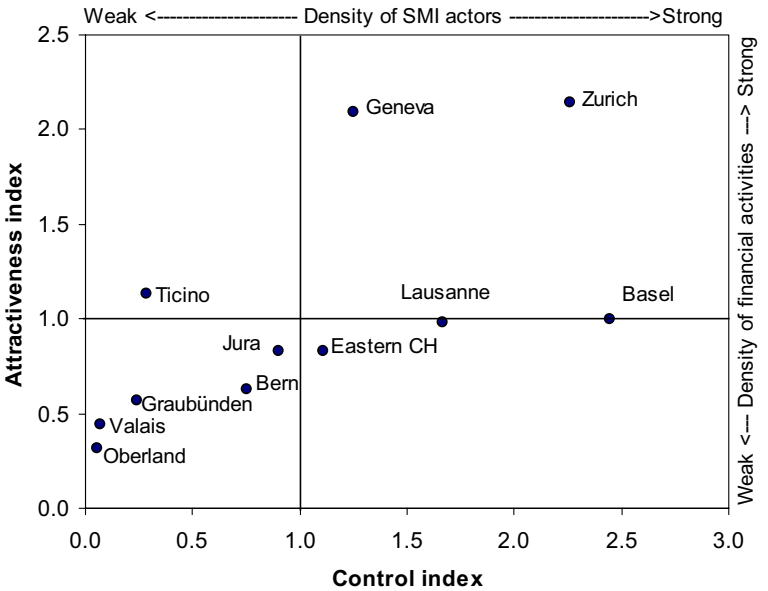
The logic of the control by major companies places the regions of Basel and Lausanne in a controlling situation, but not as far as their level of attractiveness regarding international investments is concerned. In fact, the location of the three largest Swiss multi-nationals Novartis, Roche (in Basel) and Nestlé (in the Lausanne regions) largely explains the positions of the regions in which these companies have their headquarters.

The logic of the financial centre is based on a system, a milieu considered to be propitious by foreign investors. In line with the Global City described by Sassen, the financial regions of Zurich, Geneva, and to a lesser extent Ticino, attract international investments on a massive scale because foreign investors see these areas as offering the best opportunities.

Zurich is the best example of where these two types of logic combine, since a large proportion of its local financial fabric consists of giants in the highly internationalised banking and insurance sector, such as UBS AG, Credit Suisse, Swiss Reinsurance, Swiss Life Holding, and to which the industrial giant ABB Ltd. can also be added. These groups partly explain the control index for Zurich, but the mass of smaller owners remains the most important.

Graph 1 shows the relation between the control and the attractiveness of Switzerland's regions. Attractiveness appears to depend on the density of the financial activities, whereas control is partly explained by the presence of the giants on the Swiss Market Index. The superiority of Zurich is somewhat striking. The weighted indices were nevertheless used in order to create the graph. Without this weighting, the Zurich system's performance would appear four times higher than the average.

The geographical proximity factor completely fails to hold true on an international level. The main player, Zurich, is equally capable of investing in its European neighbours as it is capable of doing in more remote countries such as the USA, Great Britain or even China. The Zurich system clearly shows its capacity for handling this type of difficulty (the geographical distance), in the same way as the global cities behave. Its specialisation in the financial sector is doubtlessly decisive here. Companies in Zurich, in fact, whether financial or not, draw upon the financial milieu for the knowledge and skills necessary for this type of transaction (acquiring share capitals in companies).



Graph 1 weighted international control and attractiveness indices of RPSs. Source: Graph drawn up by authors

This being the case, what can we deduce regarding the variances regarding autonomy in the various regions of Switzerland? While internal relations stress the cohesion of the regions, the importance of the international relations demonstrates that autonomy does not consist of an autarchic approach, but resides in a region's capacity for managing its internal and external relations in parallel. In this light, the Zurich region is without doubt the most autonomous, in the sense that it manages to handle both national and international controlling relations and attractiveness while maintaining an average level of own control. Basel is high within the controlling hierarchy at all levels – regional, national and international – but not particularly attractive. Geneva is international but has a low level of own control and is not well integrated within the national economy. Bern and Lausanne are at the top of the hierarchy regarding control of the national economy and present a different profile on an international level. The industrial regions (Jura, Eastern Switzerland) achieve average performances, but control few other entities within the country. Their autonomy thus above all appears to be linked to their integration within an international-scale sector. Their case, in fact, appears to correspond fairly well to the theories regarding the RPSs: these regions exert their own control while managing their relations with the exterior, yet without being integrated within a spatial hierarchy. Finally, the tourist regions are revealed as being the least autonomous, fairly attractive on a national level, but very low within the hierarchy in the other areas.

The overall picture that emerges is thus far richer than suggested when applying each theory in an isolated manner. But what lessons can be drawn from this image for regional economic promotion policies?

First of all, it should be stressed that by taking the various regional dimensions (inter-regional control, attractiveness, own control) of share capital held in

companies into consideration, we accept the complexity of the phenomenon. It would clearly be simpler to consider a single dimension of these relations alone, interpreting them, for example, as simple investment flows. The role of the regional authorities would thus be resumed as attracting these flows. Once again, however, the investment relation may be considered as an investment that is beneficial to the firm and to the target region, but also as a relation fostering a system of spatial division of labour (SDL).

In our opinion, however, this complexity should not force us to abandon the ambivalent nature of share capital held in companies: there is another side to this type of investment that does not simply consist of a debtor interest rate, as is the case for a bank credit. The global regional impact must be measured by accumulating the revenues and the costs linked to attractiveness, to control and to independence. This seems all the more pertinent given that the regions with the highest level of per capita national income (Zurich, Basel, Geneva, and Lausanne) are those best integrated within these three dimensions of ownership relations. Furthermore, the regions that are not as well integrated within the network (Oberland, Valais, Graubünden, Jura, Bern, Ticino, Eastern CH) are those with the lowest per capita income in the country. It thus seems evident that maintaining the territorial disparities in the country could, in forthcoming research be better understood by integrating this type of link, since these suggest development systems that are considerably different to those suggested in classical theories such as that of convergence.

The regions that are best integrated within the network are also those with the best access to the financial markets. In fact, they are either regions that specialise in this sector, or those that are the home of major international companies with preferential access to capital, i.e. regions with well-developed financial structures. This fact provides an interesting direction to follow for policies to be implemented in regions where this access is less favourable. Indeed, instead of focusing on measures that make the regions attractive for external investments, efforts could be re-directed towards an improvement in the capital available, or more generally regarding the financial services available. According to the analysis carried out here, it would certainly seem that it is the access to these services that constitutes the main competitive advantage for the strong regions. The growing context of privatisation in the financial sector, which in Switzerland has resulted in a reduction in the number of actors and a spatial concentration of the sector's activities, appears to widen this disparity regarding access to capital even further.

The good international indices of the regions with well developed financial structures do not come as a surprise if one refers to the Global City theory. It is in fact above all on the basis of these activities that the Global City is built up. If they are to strive for cohesion within the national territory, the regions connected to the international network should, ideally, be connected to the country's other regions. This is not really the case, however, since the regions of Zurich, Basel, Lausanne and Geneva above all maintain international relations, then internal relations within their region and only a virtually negligible proportion of relations with other regions of the country. The system suggested is thus not one of a potential diffusion of economic growth over national territory by means of investment, but more one of regions that articulate relations according to logics of their own – logics that do only correspond to a national logic to a lesser extent.

The currently prevailing conceptions in the field of regional policies (see the project for a new regional policy in Switzerland) are based on the principle that the major conurbations (Zurich, Basel, Geneva) constitute the centres that are the driving forces for the rest of the Swiss economy. Analysis of this network, however, suggests that the growth of these centres only spreads to the country's other regions to a small extent. A policy aimed at favouring the growth of the major centres would only increase the territorial disparities within the country. A regional policy whose objective was to avoid increasing such disparities should thus identify and integrate the specific needs of each of the Swiss regions. The possibilities open for financing the activities is one of the factors on which it would appear important to take action. We should also recall once again that this vision of territorial development is based on a study of a single type of relations alone: that of inter-firm majority share ownership.

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